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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,072	07/24/2001	James W. Moyer	5051-445	3267

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EXAMINER

BAUSCH, SARAE L

ART UNIT PAPER NUMBER

1634

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



<b>Office Action Summary</b>	<b>Application No.</b> 09/912,072	<b>Applicant(s)</b> MOYER ET AL.	
	<b>Examiner</b> Sarae Bausch	<b>Art Unit</b> 1634	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/9/2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11, 21-30, 63, 64 and 69 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10-11, 21-22, 27-28, 63-64, 69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |



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### **DETAILED ACTION**

The examiner reviewing your application at the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to examiner Sarae Bausch.

1. Currently, claims 1-7, 10-11, 21-24, 27-30, 52, 63-64, and 69 are under examination in the instant application. Claim 52 has been amended to depend on claim 64 and is under examination. Claims 8-9, 12-20, 25-26, 31, 33-43, 46-51, 53, 55-62 and 65-68 have been withdrawn. Claims 32, 44-45, and 54 have been canceled. All the amendments and arguments have been thoroughly reviewed but were found insufficient to place the instantly examined claims in condition for allowance. The following rejections are either newly presented, as necessitated by amendment, or are reiterated from the previous office action. Response to arguments follow. This action is FINAL.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Withdrawn Rejections***

3. The rejections of claim 1, under 35 U.S.C. 112, second paragraph, made in section 9, page 3 of the previous office action, is withdrawn in view of the amendment to the claims.
4. The rejections of claims 2, 4, 22, and 64, under 35 U.S.C. 112, second paragraph, made in section 11, page 3 of the previous office action, is withdrawn in view of the amendment to the claims.
5. The rejections of claim 3, under 35 U.S.C. 112, second paragraph, made in section 12, page 4 of the previous office action, is withdrawn in view of the amendment to the claims.



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6. The rejections of claims 10, 11, 27, and 28, under 35 U.S.C. 112, second paragraph, made in section 14, page 4 of the previous office action, is withdrawn in view of the amendment to the claims.

7. The rejections of claims 2, 4, 10-11, 22, 27-29, and 64, under 35 U.S.C. 103, made in section 18 and 19, pages 5-10 of the previous office action, is withdrawn in view of the amendments to the claims.

#### *New Grounds of Rejections*

8. Claims 1, 3, 5-7, 21, 23-24, 30, 63 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (*HortScience*, 1997) in view of Barcaccia et al. (*Journal of Horticultural Science and Biotechnology*, 1999 74(2): 243-50), as defined by Dice (*Ecology*, 1945). It is noted that the Barcaccia et al. reference was provided in the information disclosure statement submitted by applicants on 09 September 2004.

Ling et al. teaches a method of distinguishing genetic relationships and diversity between Poinsettia cultivars, including breeding family 'Freedom' (instant claim 5). The method utilizes RAPD analysis to distinguish the identities between Poinsettia cultivars in order to "alleviate some of the confusion of cultivar identity associated with morphological characteristics and multiple cultivar registrations" (p. 124, 1<sup>st</sup>-2<sup>nd</sup> column). Figure 3 displays the amplified restriction fragments generated by RAPD analysis and figure 1 demonstrates the cultivar relationships. The collection of RAPD data, or database as require in claim 28, enables the computation of the displayed cultivar relationships both in Figure 1 and 2. Ling et al. teach that the RAPD markers can be used for identification of poinsettia cultivars and that the results



indicate that RAPD can be used to determine the genetic relationships among cultivars and to estimate genetic diversity between cultivars (page 124, 1<sup>st</sup> full paragraph). Ling et al. does not teach the AFLP method steps to distinguish genetic relationship or diversity.

Barcaccia et al. teach a method using an AFLP marker protocol to distinguish genetic relationships and diversity of *Pelagorium peltatum*, an ornamental asexual plant. Barcaccia et al. teach using AFLP to generate a fingerprint of each plant (page 245, *AFLP markers*) and determine the identity/diversity by calculating the genetic dissimilarity estimate (GDE) in all pair wise comparisons using the formula by Dice et al (1945) (page 245-6, *Data collection and analysis*) (instant claims 63 and 69). Barcaccia et al. teach digesting genomic DNA with EcoRI and Mse I (page 245, 1<sup>st</sup> column, 4<sup>th</sup> full paragraph) (instant claims 7, 24), which have tetranucleotide and hexanucleotide recognition sites (instant claims 6, 23). The genetic dissimilarity of *P. peltatum* is shown in Table III, determining the diversity of the nine plants and the recovered flower (page 248) (instant claims 3 and 21). Dice defines the values or scores range from 0 to 1 where 0 indicates dissimilarity and 1 indicates similarity (pp. 298-99, bridging paragraph). Barcaccia teaches all calculations and analyses were conducted on Numerical Taxonomy and Multivariate Analysis System (NTSYS-pc) (page 246, 1<sup>st</sup> full paragraph, 1<sup>st</sup> column) (instant claim 30). Barcaccia et al. also teach RAPD marker analysis but teaches that banding patterns were not reproducible in subsequent replicated PCR experiments and therefore, not useable in molecular comparison with the plants (page 247, 2<sup>nd</sup> column, 1<sup>st</sup> full paragraph). Further, Barcaccia et al. teach using AFLP revealed consistent diversity between the flower recovered and each of nine DNA samples (page 247, 2<sup>nd</sup> column, last paragraph). Barcaccia et al. teach that AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the



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PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and decimating genetic differences, even between phenotypically similar individuals (page 249, 2<sup>nd</sup> column, 1<sup>st</sup> full paragraph). Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and are effective for calculating the genetic distance between cultivars (page 249, 2<sup>nd</sup> column, 3<sup>rd</sup> full paragraph).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to improve the method of identifying poinsettia cultivars by RAPDs marker taught by Ling et al. to include the AFLP marker assay as taught by Barcaccia et al. One of ordinary skill in the art would have been motivated to improve the method of genetic analysis used in Ling et al. from RAPD to the AFLP procedure taught by Barcacci et al. because Barcacci et al. teaches of the advantages of using the AFLP procedure to analyze genetic relationships and diversity in ornamental plants in order to obtain reproducible, reliable, efficient results. Further, Barcacci et al. motivates the ordinary artisan to use the AFLP technique because Barcacci et al. teaches that using AFLP fingerprinting combines the reliability of RFLP assay with efficiency of the PCR technique and AFLP markers proved to be much more powerful and reliable tool capable of probing a large number of genomic loci per experiment and discriminating genetic differences, even between phenotypically similar individuals (page 249, 2<sup>nd</sup> column, 1<sup>st</sup> full paragraph). The ordinary artisan would have had a reasonable expectation of success in using AFLP marker assay taught by Barcaccia in the method taught by Ling et al. of Poinsettia cultivar genetic analysis because Barcaccia et al. teach using AFLP markers to identify cultivars unambiguously and definitively and teaches that AFLP markers have the ability to identify new



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cultivars to determine their diversity with respect to previously registered cultivars of decorative plants (ornamental plants) (page 249, 2<sup>nd</sup> column 3<sup>rd</sup> full paragraph).

***Maintained Rejections***

***Claim Rejections - 35 USC § 103***

9. The rejection of claims 1, 3, 5-7, 21, 23-24, 30, 63 and 69 under 35 USC §103(a) as being unpatentable over Ling et al. (*HortScience*, 1997) in view of Sukhwinder et al. (*Crop Improvement*, 1998), as defined by Dice (*Ecology*, 1945) in section 18, pages 6-8 of the previous office action, is maintained and incorporated herein (see pages 6-8 of previous office action, mailed 3/10/2004).

***Response to Arguments***

10. The response traverses the rejection on the grounds that the office has failed to establish a prima facie case of obviousness. The response traverses that it would not have been obvious at the time of the invention to use AFLP analysis to evaluate genetic relationships in poinsettia plants. The response asserts that the use of AFLP in rice is distinct from its application to poinsettias, asserting that rice is a sexually reproducing crop with a broad genetic pool and the study of rice genetics is quite advanced in contrast to a limited number of molecular studies performed with floral crops. The response asserts that AFLP analysis just recently has been used on ornamentals and it was not obvious at the time of the invention to use AFLP to study genetic fingerprint of poinsettias. The response further asserts that there would have been no reasonable expectation for the ordinary skilled worker that one would be able to apply AFLP analysis to determine genetic relationships among poinsettia cultivars. These arguments have been



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thoroughly reviewed but were not found persuasive. While Sukhwinder et al. does not teach using AFLP to determine genetic relationships for poinsettias cultivars, it would have been obvious to one skilled in the art at the time of the invention to use AFLP method taught by Sukhwinder to determine genetic relationships for poinsettias cultivars because Sukhwinder et al. teaches that although other fingerprinting methods such as RFLP and RAPD assays had been commonly used to discriminate *various* cultivars, the new technique of using AFLP “combines reliability and robustness of RFLP and strength of PCR techniques”. Therefore, one of skill in the art would have been motivated to use the method of Sukhwinder et al. with poinsettia cultivars as Sukhwinder et al. suggest that this new technique can discriminate *various* cultivars, which could include poinsettia cultivars.

The response further traverses that the primary reference of Ling et al. does not disclose or suggest a method of determining genetic relationship or differences between a large number of genetically similar cultivars. This argument has been thoroughly reviewed but was not found persuasive as Ling et al. does teach a method of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., determining a genetic relationship between a large number of genetically similar cultivars) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The claims recite a method of estimating a genetic relationship between *a* poinsettia plant and *a* known poinsettia cultivar and therefore the traversal is not found persuasive.



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The response asserts that the application of AFLP analysis of poinsettia plants was not straightforward, that one of ordinary skill would have expected that poinsettia would have essentially no intracultivar variability and that neither the prior art of Ling et al, Sukhwinder et al, nor Dice, alone or in combination, disclose or suggest it would be possible to overcome the interfering effects of intracultivar variability or teach a method of doing so as was achieved by the present invention. The response asserts that the instant application focuses on the quality of polymorphisms rather than just the quantity. This argument has been thoroughly reviewed but was not found persuasive because the claims do not recite the AFLP analysis that overcomes the interfering effects of intracultivar variability nor do the claims recite the “quality of polymorphisms rather than just the quantity” for determining genetic relationships. The claims are broadly drawn to a method of estimating a genetic relationship between a poinsettia plant and a known poinsettia cultivar and the prior art, in combination, teaches the method as recited by the instant pending claims. The claims are not drawn to a method of detecting intracultivar variation. The response asserts that it was not at all obvious that polymorphisms could be identified that indicate cultivar similarity and differences nor track breeding history or pedigree of plants. The response further asserts that the Ling reference used poinsettia cultivars from different families and did not in any way evaluate whether genetic fingerprinting correlates with pedigree. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., determining pedigree of poinsettia and breeding history) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The



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claims recite a method of estimating a genetic relationship between a first poinsettia plant to a poinsettia plant that is a representative member of a specific breeding family. The claims do not recite a determining a pedigree or breeding history of poinsettias and therefore the traversal is found unpersuasive.

Further, the response cites a work by Parks and Moyer for support in the response to the first office action. However, the submission of Parks and Moyer require a declaration or affidavit form as stated in the MPEP, section 716.02(g):

“The reason for requiring evidence in declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 25 and 18 U.S.C. 1001.” Permitting a publication to substitute for expert testimony would circumvent the guarantees built into the statute. *Ex parte Gray*, 10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989).

For these reasons, and the reasons made of record in the previous office actions, the rejection is maintained.

11. Claims 1, 3, 5-6, 21, 23, 30, 63 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (*HortScience*, 1997), in view of Barker et al. (*Genome*, 1999) as defined by Tullos (Offprint from Palm ME and IH Chapela, eds, 1997) in section 19, pages 8-10 of the previous office action, is maintained and incorporated herein (see pages 8-10 of previous office action, mailed 3/10/2004).



*Response to Arguments*

The response traverses that it would not have been obvious to one of ordinary skill in the art at the time of the invention was made to improve the poinsettia cultivar genetic analysis method of Ling et al. and modify the RAPD using AFLP techniques as per the teachings of Baker et al. The response asserts that Barker et al. uses RAPD and AFLP to characterize genetic diversity in 19 willow cultivars and the willow cultivars is a crop plant and distinguishable from an ornamental plant. The response asserts that the work of Barker et al. with willow cultivars can not render the instant application obvious with respect to AFLP assay for genetic analysis of poinsettias. This argument has been thoroughly reviewed but was not found persuasive because the willow is an asexual plant, like the poinsettia, and the genetic variation, regardless of the origin of DNA, is analyzed and evaluated in the same manner. Barker et al. teach the AFLP assay “revealed more genetic diversity and discriminated between closely related clones” (p. 182, 1<sup>st</sup> column, 2<sup>nd</sup> paragraph) and therefore the ordinary artisan would have been motivated to use the assay of AFLP to determine genetic variation in poinsettias. Further, the response cites a work by Parks and Moyer for support in the response to the first office action. However, the submission of Parks and Moyer require a declaration or affidavit form as stated in the MPEP, section 716.02(g):

“The reason for requiring evidence in declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 25 and 18 U.S.C. 1001.” Permitting a publication to substitute for expert testimony would circumvent the guarantees built into the statute. Ex parte Gray, 10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989).



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For these reasons, and the reasons made of record in the previous office actions, the rejection is maintained.

### *Conclusion*

Claims 2, 4, 10, 11, 22, 27-29, 52, and 64 are free of the cited prior art and are objected to for being dependent on rejected claims. The claims would be allowable if rewritten with all claim limitations from claims which they depend.

Claims 1, 3, 5-7, 21, 23-24, 30, 63 and 69 are not allowable over the cited prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarae Bausch whose telephone number is (571) 272-2912. The examiner can normally be reached on M-F 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.




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**JEHANNE SITTON**  
**PRIMARY EXAMINER**

11/23/04

  
Sarae Bausch, PhD.  
Examiner  
Art Unit 1634



Continuation of Disposition of Claims: Claims withdrawn from consideration are 8,9,12,15-18,25,26,31,33,35,36,38,41,46,48-51,53,55,57,58,60,65 and 68.